

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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on a Soviet Destroyer
and Other Soviet Naval Vessels

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1. The radio receiving center of the Project 30-bis ("SKORYY-class") destroyer contained one Rusalka (Mermaid) receiver, three Khmel (Hops) receivers, an Akatsiya (Acacia) VHF radiotelephone, a small reserve all-wave transmitter called Uran (Uranium), which was used primarily for short-wave, and switchboards which permitted connecting the receivers and transmitters with other posts, such as the bridge and combat information point (BIP--boyevyy informatsionnyy punkt). The entire receiving center radio complex was referred to as "R-609". Rusalka had a sensitivity of not less than two to three microvolts and cost 1,600,000 rubles; the Khmel was a more common type of receiver which cost only several thousand rubles. Rusalka operated in the 10 - 200 meter band, for Morse and voice reception. It can shift automatically to any of twelve frequency ranges and automatically tune to the best signal. It was the largest receiver aboard approximately 70 by 70 by 70 centimeters. There were several versions of Rusalka.

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2. The transmitting center had two transmitters, a 1.2-kw Neptun (Neptune) and a 250-watt Lira-D (Iyre-D); "D" stands for Diskretnik (discrete). Crystals could be used with the Lira-D. One of the ship's three Akatsiya VHF radiotelephones was also located in the transmitting center, as was a reserve all-wave receiver. The ship also had a radio relay shack equipped with two receivers and a switchboard to all points. This was a loudspeaker system used for propaganda and cultural purposes.

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3. The most important item of communications equipment was a rapid-communication apparatus (apparatura bystro-deystvuyushchey svyazi) called Biryuz (Turquoise). This was not a transmitter or receiver, but could be used with any medium or high frequency receiver or transmitter to send any type of message under almost any

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-2- 10-200 mHz
30 mHz - 1500 kHz

circumstances. The Rusalka receiver and Lira-D transmitter were most frequently used with Biryuza; it was never used with Akatsiya. Two Biryuzas were [redacted] one on the bridge and the other near the receiving center, both connected in parallel.

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4. Biryuza was used by all Soviet cruisers, all Project 56 ("KOTLIN-class") and Project 30-bis ("SKORYY-class") destroyers, Project 611 ("Z-class"), Project 642 ("F-class"), and some Project 613 ("W-class") submarines, all communications ships, some smaller vessels, and all Navy communications shore stations.¹ It is not used by aircraft.

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This equipment has never been seen by foreigners, but the Poles have older models of similar equipment. Biryuza shore stations were located at Liepaja, Riga, Kronshtadt, Leningrad, Baltiysk, Kaliningrad, and Swinoujscie; the main station was Komintern in Moscow; no station was located at Gdynia.

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5. Biryuza was transistorized and used printed circuits. The Biryuza signal (burst) had a duration of several tens of microseconds, e.g., twenty-seven microseconds;

[redacted] Submarines used 1 kw transmitters and could employ Biryuza only when surfaced, or possibly at periscope depth with the antenna raised. Powerful shore stations under a special Moscow directorate communicate with submerged submarines on very low frequencies. Biryuza could be used shore-to-ship, but shore stations generally sent by Morse instead of using Biryuza. [redacted] Biryuza was referred to in communications as Amur (Amur), followed by a one-digit number which designated the frequency in use.

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6. There were several types of Biryuza, known as Biryuza-1, Biryuza-2, [redacted] and [redacted] Biryuza-3 [redacted]

An improved Biryuza-type apparatus has been built and tested, in order to reduce even further the number of microseconds required for transmitting a signal. Biryuza was installed on Baltic Fleet vessels, particularly cruisers, in late 1955, at Baltiysk and Kronshtadt. Installation could be carried out anywhere.

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[redacted] Chief petty officers (starshina) were sent to production facilities to study the equipment and learn to maintain it and instruct other personnel in its use. Biryuza was out of service quite a lot during the early period of its use aboard ship because of the operators' lack of familiarity with it, but it is now entirely reliable and operates with almost no breakdowns, even after gunnery practice.

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7. [redacted] a new type of transistorized equipment called the VHF (UKV) radio direction finder (ukaveynny radiopelengator) was placed aboard [redacted] The telescopic antenna support for this equipment had to be strengthened and bracing improvised on the mast, because the antenna oscillated as much as five meters in rough weather. It had sliding tuning (skolzyashchiy diapazon) which could cover the VHF range automatically, and an indicator gave the bearing of any VHF transmission intercepted. Audibility was excellent, and the audibility range was greater than that of the Akatsiya. The strength of the signal made it possible to determine the approximate distance of the transmitter; if the transmitter's power output was

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known, the distance could be determined fairly precisely. This equipment was developed for the Army, but the tests were so successful that the Navy decided to order such equipment. The transmissions of

Soviet ships were monitored during the tests.

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8. The installation and testing of this direction-finder were performed by a group of specialists from a Ministry of Defense communications institute in Leningrad. This institute had Army, Air Force, and Navy departments, and worked on both civil and military electronic equipment. The group from the institute consisted of eight persons, including a colonel and lieutenant colonel, and was headed by Engineer Captain First Rank Dyachenko.

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9. Cruisers had a top secret decimetric radiotelephone called Shlyupka (Boat) which could be used for secure conversations in the clear with any point in the USSR. It transmitted on a very narrow beam with a range of eight to ten nautical miles from ship to shore and then followed regular telephone lines. It could be used with the VCh (vysokaya chastota) secure radiotelephone net, and was like that net, not like Akatsiya, since Akatsiya was a circular transmission which could be heard all around. Shlyupka came into service in the last two years; it could not be used ship-to-ship, but only by prearrangement with a shore station which was at a precisely known geographical point. Audibility on Shlyupka was excellent, perhaps a little harsh, but it was not necessary to talk loud when using it. A normal dial telephone was used with it. Cruisers also carried permanently installed intercept and direction-finding equipment, and intelligence officers occasionally placed such equipment on other vessels. The cruiser SVERDLOV had new cipher equipment which was installed for ship-to-shore and shore-to-ship communications; the cruiser ORDZHONIKIDZE was also to get this equipment, which might be used with Biryuza. Destroyers and submarines did not have cipher machines, only cruisers and Fleet Headquarters, but there was talk of placing such machines of a smaller size aboard one or two ships of a destroyer brigade, such as the flagship and second ship.

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10. Three watches were Morse watch, radio-telephone watch, and Biryuza watch. If Biryuza was out of order, telegraph was used, then radiotelephone. The control point was the radio shack, where the watch was set, and the radioman served as a check on the watch officer or communications officer. A recorder such as was used with sonar was used to record everything that came in, and it could also be used to transmit. Transmitters always worked at minimum power, and all radios were turned off when in port.

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11. The only persons permitted in the radio rooms were the captain, senior assistant to the captain, the radio officer, the watch officer, and radiomen. Only the captain and cipher clerk entered the cipher shack. The cipher clerk was a chief petty officer (starshina); prior to 1950 officers acted as cipher clerks. Messages were released by the captain or radio officer. When the captain wished to send a message he called the cipher clerk, who would bring him the message forms. The captain wrote the message and ordered it to be enciphered. When it was enciphered the clerk called to ask permission to send it. The captain

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could also leave instructions with an officer on the bridge that the message be sent as soon as it was enciphered, or might in unusual circumstances tell the clerk to send the message as soon as it was enciphered, without calling the captain for permission. If a message were for Moscow it would be sent to the nearest shore station and relayed from there; the clerk knew how to prepare the message for whatever addressee was to receive it. The precedence of messages was routine, urgent, extremely urgent, or flash (vozdukh or V Z D).

submarines could communicate with aircraft only via shore stations.

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12. The Navy operated control stations which monitored all transmissions by naval vessels to watch for violations of communications security. Ships were directed to operate within specific radio networks, and all these networks were monitored around the clock by the watch at the control stations. There were other control stations which intercepted enemy communications; these stations were sometimes subordinate to the Navy and sometimes subordinate to some other office.

When a violation of the rules for radio traffic occurred the Fleet Communications Department called it to the attention of the Chief of Communications, who reported it to the Chief of Staff. The offending vessel received a notice of the violation if it was minor, but more drastic measures were taken by higher offices if the violation was more serious.

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13. Cipher matters were controlled by the 8th Department (otdel) of Fleet Headquarters (Shtab flota). Squadrons had flag cryptographers, and occasionally such specialists were assigned to brigades. At least, one cipher clerk was assigned to each ship. They were trained at Lomonosov (formerly Oranienbaum) in a naval school controlled by the 8th Directorate (upravleniye) of the Navy, not by the KGB. Radiomen were trained at Kronshadt, Stalino, etc., and radar operators were trained at Mamonovo, near Kaliningrad. The ship's captain was the only person besides the cipher clerk who had access to cipher material; an extra set of ciphers was kept in the captain's personal safe, under seal. Persons with access to ciphers received special clearance (dopusk) from the KGB Special Department (Osobyy otdel).

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Comment:

1. equated the Soviet project numbers with the arbitrary designations in parentheses

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